TOWER STANDARD – VAPOR INTRUSION INVESTIGATION

The approximate locations for the sample locations recommended to complete the vapor intrusion investigation at the site are included mark-ups added to Weston's Figure 3

TOWER STANDARD SOURCE BUILDING:

- SUBSLAB SAMPLING ("SS"):
    - Collect one subslab sample within the bait shop/office building
    - Install sample probe and complete leak test QA/QC
    - Collect sample in Summa Canister (30 minute sample)

HASKELL LAKE LODGE MOTEL:

- CRAWL SPACES SAMPLING ("Crawl")
    - Collect three to four samples in crawl space
        - Collect as practicable based on accessibility of crawl space
    - Collect each sample with Summa Canister (24-hour samples)
        - Canister set directly on floor of crawl space
- INDOOR AIR SAMPLING ("IA")
    - Pair each crawl space sample with an indoor air sample
        - Indoor air sample collected at or near the location of the crawl space sample
        - Indoor air sample collected concurrent (same time) as crawl space sample
    - Remove indoor sources of PVOC to the extent practicable
        - Complete prior to sample collection
        - Inventory items that cannot be removed and remain during sampling
    - Collect each sample with Summa Canister (24-hour sample)
        - Canister set on table or shelf off the floor
        - Canister set away from doors or windows

WISCONSIN SCREENING LEVELS

U.S.EPA RSL Table values are based on a HI = 1 for non-carcinogens; and 1x 10-6 excess lifetime cancer risk for carcinogens (cRCLs). In Wisconsin, the HI= 1 and 1 x 10-5 excess lifetime cancer risk apply to screening indoor air (i.e. vapor action levels). WI Vapor Action Levels (VALs) are set by multiplying the U.S.EPA cRCL values by 10 for carcinogens, or applying RSLs equivalent to HI=1 for non-carcinogens.

Using these criteria, the screening levels for the samples suggested above are summarized on the following table.

CHEMICAL	RESIDENTIAL (MOTEL)				SMALL COMMERICAL (TOWER STATION)				U.S.EPA RSL BASIS
	CRAWL SPACE AF = 1				SUBSLAB AF = 0.03				
	INDOOR AIR VAL		CRAWL SPACE VAPOR VRSL		INDOOR AIR VAL		SUB-SLAB VAPOR VRSL		
	µg/m^3	ppbV	µg/m^3	ppbV	µg/m^3	ppbV	µg/m^3	ppbV	
1,3-Butadiene	0.94	0.42	0.94	0.42	4.1	1.8	140	61	c
Benzene	3.6	1.1	3.6	1.1	16	4.9	530	160	c
Ethylbenzene	11	2.5	11	2.5	49	11	1,600	370	c
Methyl Tert-Butyl Ether (MTBE)	110	30	110	30	470	130	16,000	4,300	c
Naphthalene	0.83	0.16	0.83	0.16	3.6	0.68	120	23	c
Toluene	5,200	1,400	5,200	1,400	22,000	5,700	730,000	190,000	n
1,2,4 -Trimethylbenzene	7.3	1.5	7.3	1.5	31	6.2	1,000	210	n
1,2,5- Trimethylbenzene	--	--	--	--	--	--	--	--	n
Xylene (mix)	100	23	100	23	440	100	15,000	3,300	n
Xylene (n,m,o separately)	100	23	100	23	440	100	15,000	3,300	n

Notes

AF = Attenuation Factor VAL = Vapor Action Level VRSL = Vapor Risk Screening Level

-- No Inhalation Toxicity Info Available RSL = Regional Screening Level

U.S.EPA RSL Tables: http://www.epa.gov/risk/risk-based-screening-table-generic-tables

Values reported to two significant digits.